



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 HANFORD/INL PROJECT OFFICE
 309 Bradley Boulevard, Suite 115
 Richland, Washington 99352

August 4, 2005

Matthew McCormick
 Assistant Manager for Central Plateau
 U.S. Department of Energy
 PO Box 550 (A7-50)
 Richland, WA 99352

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EDMC

Re: Transmittal of EPA Comments to Focused Feasibility Study for the BC Cribs and Trenches Area Waste Sites, DOE/RL 2044-66, Draft A, and the Proposed Plan for the BC Cribs and Trenches Area Waste Sites, DOE/RL-2004-69, Draft A.

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Dear Mr. McCormick:

The U.S. Environmental Protection Agency (EPA) is providing comments to both the Focused Feasibility Study and the Proposed Plan for BC Cribs and Trenches Area Waste Sites. The comments are attached for your review.

The U.S. Department of Energy Richland Operations Office should be commended in the incorporation of (Alternative 5) near-surface excavation and capping in the above-referenced documents. The EPA agrees and supports DOE in the preferred alternative, excavation, for the underground siphon tank, the pipeline, and four trenches. However, in our opinion, the six cribs and sixteen trenches are better served with near-surface excavation and capping, as opposed to just capping. We believe removing the near-surface contaminants and capping provides the highest degree of overall protection of human health and the environment, reduces the risk from principal threat waste more effectively, and is consistent with stakeholder values as reflected in advice from the Hanford Advisory Board.

The EPA is looking forward to working with your staff in modifying these documents for necessary public comment and legal review. Please contact me at (509) 376-3749 if you have questions.

Sincerely,

Rod Lobos
 Project Manager

Enclosures

cc: Bryan Foley, DOE
 John Price, Ecology
 Mark Bennecke, FH
 Administrative Record: 200-LW-1 & 200 TW-1

EPA Comments for the BC Cribs Proposed Plan (DOE/RL-2004-69 Draft A)

General

- 1 EPA disagrees with the preferred alternative (Alternative 4) of capping for the 216-B-20 through B-34 and 216-B-52 trenches. In our opinion, Alternative 5 provides the highest degree of overall protection of human health and the environment, reduces the risk from principal threat waste more effectively, and is consistent with stakeholder values as reflected in advice from the Hanford Advisory Board in advice #63, #173 (the Central Plateau Remedial Action Values Flow Chart), and #174. This should be reflected in the document.
- 2 The EPA concurs with the preferred alternative (Alternative 3) for 200-E-114 Pipeline.
- 3 The EPA disagrees with the preferred alternative (Alternative 4) capping for 216-B-14 through 216-B-19 Cribs. EPA believes that Alternative 5 is a more appropriate alternative. The streamlined characterization approach used for the six cribs creates uncertainty in the extensive assumptions that have to be accepted. Although the representative site chosen is a crib, there are many differences between it and the subject cribs which warrant characterization. The B-46 Crib is located north of the BY Tank Farm and is part of the BY Cribs, while the subject cribs are located south of the BY Tank Farm and are part of the BC Cribs and Trenches Area. Although the representative crib received the same waste stream for part of the time, it was not hooked up to the same pipeline and tank as the six subject cribs. It is also noted that the 216-B-46 Crib originally received wastes from 221-B (page 2-61), while the other cribs did not. Other notable differences between the B-46 Crib and the subject cribs are: contamination in the B-46 Crib starts below 15 feet of depth, while the contamination in the subject cribs are 10-13 feet deep; and the B-46 Crib has impacted groundwater and the six subject cribs have not. The selection of Alternative 5 would ease most of these concerns as contaminants can be monitored as the waste is removed, along with removing most of the higher concentrations of contaminants.
- 4 The EPA agrees with the preferred alternative (Alternative 3) for 200-E-14 Siphon Tank. However, please note, in FFS comments we state Alternative 5 is more applicable, as the cap for the adjacent sites will more than likely cover this area.
- 5 The EPA agrees with the preferred alternative (Alternative 3) for 216-B-58 Trench, 216-B-53A Trench, 216-B-53B Trench, and 216-B-54 Trench. However, please note, in FFS comments we state Alternative 5 is more applicable, as the cap for the adjacent sites will more than likely cover this area.

- 6 Implementability for Alternative 5 is shown as "Moderate: partially meets criterion" for 216-B-20 through B-34 and 216-B-52 trenches and for 216-B-14 through 216-B-19 Cribs, but there is no explanation as to why it is not readily implementable. Please explain.
- 7 For Alternative 4, inadvertent intruder exposures after 150 years of active institutional controls are not within the CERCLA acceptable risk range of 10^{-4} to 10^{-6} . Please compare this risk to the other alternatives that have contaminants removed.
- 8 It appears that remedial worker dose is used as a primary deciding factor in "Short Term Effectiveness," "Implementability," and "Overall Protection of Human Health and the Environment." Please explain.
- 9 The EPA recognizes that it is difficult to implement complete RTD on some of these sites due to the depth of excavation required, but it should be acknowledged that technologies may need to be investigated to properly address the deep technetium-99 and nitrate contamination. Additional characterization is warranted to reduce the uncertainty in the amount of contamination remaining in the deep vadose zone. The FS and proposed plan should describe an updated strategy for how to address this.
- 10 There should be some discussion on the portion of pipeline that is north of Route 4 South. A strategy should be formulated for addressing it. No rationale is provided in regards to why the entire pipeline is not addressed in this proposal.

Specific

- 1 *Page 1, second paragraph.* Add siphon to tank. It should be consistent with the rest of the document.
- 2 *Page 1, bulleted paragraph last sentence.* Add monitoring.
- 3 *Page 1, highlighted box, third bullet.* Send comments to Rod Lobos (509) 376-3749, lobos.rod@epa.gov
- 4 *Page 2, second bullet, second sentence.* Remove description of the evaluation process and add what the groundwater needs to be protected from, i.e. technetium-99 & Nitrate contamination in the vadose zone.
- 5 *Page 2, "Overview of the Proposed Plan" at the end of the first sentence.* Make a note to see Figure 2.

- 6 *Page 5, first sentence.* The sentence states that there are 16 trenches, but earlier it was listed as 20.
- 7 *Page 5.* The actual contaminated area (acres or another unit of measurement) should be quantified and compared to the non-contaminated area for the BC cribs and trenches.
- 8 *Page 5, "Scope and Role of Action" second to last sentence.* Change "in the next 3 to 10 yr." to "sometime in the future."
- 9 *Page 6,* What do the colors in Figure 2 represent? There should be a legend explaining these.
- 10 *Page 6,* Pipeline, Siphon Tank, Cribs, and Trenches should be labeled for easy identification.
- 11 *Page 9, Stand-alone sites rationale.* For Siphon Tank and pipeline it is stated that contaminant distribution would be higher in the soil column. Since there is no history of leaks, it should be expected for the soil column to have significantly lower levels of contaminants. Explain why this statement is made.
- 12 *Page 10,* Estimate total amount of contaminants that will be removed under the different alternatives.
- 13 *Page 11, fourth bullet.* Describe and quantify "shallow zone." (i.e. 0 to 15 ft bgs.)
- 14 *Page 11 & 12, Land Use.* Change "industrial/exclusive zone" to "industrial zone" in this document or provide a reference and definition for "industrial / exclusive."
- 15 *Page 11, Land Use.* Remove web link.
- 16 *Page 12, Human Health Risk, first paragraph, last sentence.* Clarify exposure time of "a few hundred years."
- 17 *Page 12, Human Health Risk, second paragraph, first sentence.* Add "if no action is taken" to the end of the sentence. It should also be noted that the groundwater in the BC area has not been impacted by Hanford activities.
- 18 *Page 12, Human Health Risk, fourth paragraph, fourth sentence.* Change "humans are not protected" to "humans who come in contact with the waste are not protected."
- 19 *Page 12, Human Health Risk.* Add a paragraph describing each scenario.
- 20 *Page 13, Ecological Risk.* Add a paragraph explaining that biota are present in the BC Control Area.

- 21 *Page 13, Second RAO.* Drop the word “further” from the RAO. At this point the GW under the BC Cribs is not impacted.
- 22 *Page 14, Summary of Site Risks, First bullet.* 15 mrem/yr is consistent with the CERCLA acceptable risk range of 10^{-4} to 10^{-6}
- 23 *Page 15, Summary of Remedial Alternatives, First paragraph, third sentence.* Change “the Regulatory Agencies (Washington State Department of Ecology [Ecology] and EPA) have a” to read “of the.”
- 24 *Page 18, last sentence.* Add “as no cap would be needed.” At the end.
- 25 *Page 19, Compliance with ARARs, end of first paragraph.* Add “adjacent to waste site.”
- 26 *Page 21, End of first paragraph.* Clarify the high rating for Alternative 3 and moderate for Alternative 5.
- 27 *Page 22, Cost, Third to last sentence.* Change “to satisfy waste acceptance criteria” to “worker protection.”
- 28 *Page 23, Second bullet.* Update this area with the results from the focused feasibility study process and evaluation of the selection of soil desiccation as the preferred technology.
- 29 *Page 24, End of third paragraph.* Change “EPA 15 mrem / yr standard” to “15 mrem /yr operational limit.”
- 30 *Page 36, Public Meetings.* Change “Dennis Faulk at (509) 376-8631” to “Rod Lobos at (509) 376-3749.”
- 31 *Page 36, Submitting Comments.* Change “712 Swift Boulevard, Suite 5” to “309 Bradley Blvd, Suite 115.”
- 32 *Page 36, Submitting Comments.* Change “faulk.dennis@epa.gov” to lobos.rod@epa.gov.
- 33 *Page 36, Points of Contact.* Change “Dennis Faulk” “(509) 376-8631” to “Rod Lobos” “(509) 376-3749.”

**EPA Comments for the BC Cribs and Trenches Area Waste Sites Focused
Feasibility Study (DOE/RL-2004-66 Draft A)**

General

- 1 EPA disagrees with the preferred alternative of capping for the 216-B-20 through B-34 and 216-B-52 trenches. In our opinion, Alternative 5 provides the highest degree of overall protection of human health and the environment, reduces the risk from principal threat waste more effectively, and is consistent with stakeholder values as reflected in advice from the Hanford Advisory Board in advice # 63, #173 (the Central Plateau Remedial Action Values Flow Chart), and #174.
- 2 It is assumed that proposed excavated depths are from current ground surface elevations. If this is correct, a large amount of the proposed excavation will be "essentially clean." It is not clear if this was factored into worker dose as it relates to shielding and handling the soil. Please clarify.
- 3 The EPA disagrees with the preferred alternative (Alternative 4) capping for 216-B-14 through 216-B19 Cribs. EPA believes that (Alternative 5) is a more appropriate alternative. The streamlined characterization approach used for the six cribs creates uncertainty in the extensive assumptions that have to be accepted. Although the representative site chosen is a crib, there are many differences between it and the subject cribs which warrant characterization. The B-46 Crib is located north of the BY Tank Farm and is part of the BY Cribs, while the subject cribs are located south of the BY Tank Farm and are part of the BC Cribs and Trenches Area. Although the representative crib received the same waste stream for part of the time, it was not hooked up to the same pipeline and tank as the six subject cribs. It is also noted that the 216-B-46 Crib originally received wastes from 221-B (page 2-61), while the other cribs did not. Other notable differences between the B-46 Crib and the subject cribs are: contamination in the B-46 Crib starts below 15 feet of depth, while the contamination in the subject cribs are 10-13 feet deep; and the B-46 Crib has impacted groundwater and the six subject cribs have not. The selection of Alternative 5 would ease most of these concerns as contaminants can be monitored as the waste is removed, along with removing most of the higher concentrations of contaminants.
- 4 It is not clear as to why operating and maintenance costs associated with Alternative 5 for both (216-B-14 through 216-B-19 cribs) and (216-B-26 through 216-B-34 and 216-B-52 trenches) are more than for Alternative 4. It is not clear if cost projections include federal, state, and local government costs for administering the varying life of institutional controls. Intuitively a cap that has to perform at a higher level along with a longer period of institutional controls would have a higher cost. Please explain.

- 5 The construction methods for the various alternatives require using water for dust control, which has the potential to adversely impact mobile contaminants that have not reached groundwater. There should be a discussion as to which alternative would minimize the potential impact to groundwater. Naturally, one would assume most of the water used for dust suppression while excavating, would be removed from the waste site when the soil is disposed of in ERDF. Although both Alternatives 4 and 5 have "engineered barriers," one would deduce that the "engineered barrier" with the most layers and the greatest requirement for compaction and accompanying moisture may have a higher potential for mobilizing contaminants.
- 6 It is unclear as to why Alternative 5 "does not meet criteria" for short-term effectiveness as shown in Table 8-1 and 8-3. Please explain.
- 7 It is unclear why remedial worker dose is deemed as "considerable worker risk." It is stated in the FFS that, "Radiological controls can readily be applied to the excavation process to limit the expected human dose." (page f-38). The projected collective dose for protected remedial workers is 76 person-rem for (Alternative 3) complete RTD, intuitively (Alternative 5) near-surface excavation would be somewhat less. It is expressed in the FFS that approximately 36% of the remedial worker dose is at ERDF. The secondary waste acceptance criteria for ERDF include radiological control-based criteria (limits on smearable alpha and beta, limits on total dose at 1 ft, etc.). These limits are for worker protection. If a project ships waste that meets these criteria, no unacceptable exposures to ERDF employees should occur. If one is confident in the worker safety controls at ERDF, the 76 person-rem estimate can be reduced to less than 49 person-rem for all the work excluding ERDF. It is understood that partial excavation and capping would take approximately 2.6 years to complete. If one takes into account the length of time it takes to complete the project, it would yield less than 19 person-rem/yr. Evaluating the total expected worker received dose (except ERDF) of 19 person-rem/yr to the DOE whole body dose limit of 5 rem/year for each worker or the DOE Administrative Control Level of 2 rem/year for each worker, the remedial worker expected dose seems minimal. Please explain why the remedial worker risk is described as considerable.

Specific

- 1 *Page 2-36, Deep Zone Groundwater Protection.* It appears the STOMP modeling was performed using a point calculation (i.e. contaminants modeled as they immediately hit groundwater). Traditionally groundwater risks are calculated by extracting groundwater from a screened well adjacent to the waste site. Calculating the groundwater risk pathway by this method more accurately represents the risk to human health from consuming groundwater. Recommend the modeling be expanded to run this additional scenario.

- 2 *Page 2-38, Section 2.7.3 second paragraph.* For comparison purposes EPA suggests listing the intruder dose limits from DOE Order 435.1 of 100 mrem/yr chronic and 500 mrem/yr acute. Suggest this information be carried through the intruder scenario discussion.
- 3 *Page 2-40, Section 2.7.4.3.* It is not clear how analogous B-46 is to B-14 through B-19 Cribs. Please clarify the expected depths to contamination in the B-14 through B-19 Cribs and how this might change the risk profile.
- 4 *Pages 2-61 through 2-74, Table 2-2.* The table uses two sets of numbers one set is in parenthesis. Please label and explain.
- 5 *Pages 2-69, Table 2-2, 216-B-30, Rationale.* The table states "site construction is identical to the 216-B-46 Crib." It should read "site construction is identical to the 216-B-26 Trench."
- 6 *Page 3-10, Section 3.5.3.* Drop the words "to be conservative" not exceeding MCLs is what is required by regulation.
- 7 *Page 3-14, Table 3-2.* Please clarify the purpose of footnotes g, h & j.
- 8 *Page 4-12, Section 4.2.2.5* EPA disagrees with adding this tank to the Z-361 action. Please remove this statement.
- 9 *Page 6-28, 216-B-58 Trench.* It is not clear why this alternative is not applicable. It seems likely that due to the geographic proximity to the other sites one cap would be installed over the entire area; thus these sites by default would fall under Alternative 5.
- 10 *Page 7-1, Section 7.1.1, 1st paragraph.* It is not clear why Alternative 4 capping is the most protective. Intuitively Alternative 3 or 5 should be more protective as contaminants are removed from the waste sites. Please clarify.
- 11 *Page 8-1, Section 8.1.1.* EPA disagrees with the preferred alternative of capping for the 216-B-20 through B-34 and 216-B-52 trenches. In our opinion, Alternative 5 provides the highest degree of overall protection of human health and the environment reduces the risk from principal threat waste more effectively, and is consistent with stakeholder values as reflected in advice from the Hanford Advisory Board in advice # 63 (institutional controls on the Hanford site), #173 (the Central Plateau Remedial Action Values Flow Chart), and #174.
- 12 *Page 8.2, Section 8.1.2* As discussed earlier for 216-B-58 and its associated sites, Alternative 5 seems more appropriate than Alternative 3 as the cap would cover the area.

- 13 *Page 8-2, Section 8.1.3* As outlined in comment 10. EPA believes Alternative 5 is more appropriate for waste sites 216-B-14 through 216-B-19.
- 14 *Page 8-3, Section 8.1.4, Second paragraph.* This paragraph should be updated to reflect findings from the independent technical review since it has already been conducted.
- 15 *Page B-11, MTCA.* The rational column for MTCA should be changed from relevant & appropriate to applicable since these regulations are used to establish PRGs. In all other decisions, 173-340 had been applicable, not relevant & appropriate. Same comment applies to WAC 173-350.
- 16 *Page D-1, D2.0,* update highlighted area.
- 17 *Page F-1, Section F1.2* Change the word "meager" to "limited."
- 18 Input parameters for groundwater modeling needs to be included in the appendix.